Meridian 1

Option 11C

ISDN BRI Hardware Installation and Maintenance

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About this guide

About this guide

This document contains ISDN BRI Option 11C specific hardware installation information. For general ISDN BRI hardware installation and maintenance information, refer to *ISDN Basic Rate Interface: Installation* (553-3901-200).

This document is a global document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

Related documents

- *ISDN Basic Rate Interface: Product Description* (553-3901-100)
- *ISDN Basic Rate Interface: Installation* (553-3901-200)
- *ISDN Basic Rate Interface: Administration* (553-3901-300)
- *ISDN Basic Rate Interface: Acceptance Testing* (553-3901-330)
- *ISDN Basic Rate Interface: Maintenance* (553-3901-500)

For information on ISDN BRI features on Option 11C, refer to *Networking Features and Services* (553-2901-301).

ISDN BRI hardware configuration

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Reference List

The following are the references in this section:

- *Option 11C 1.5Mb DTI/PRI* (553-3011-310)
- *Option 11C 2.0Mb DTI/PRI* (553-3011-315)

Hardware required for line and packet data applications

The following hardware is required to configure line and packet data on the Option 11C:

- MISP circuit card — NTBK22
- SILC circuit card
  NT6D70AA — -48V North American S/T interface line card
  NT6D70BA — -40V International S/T interface line card
- UILC circuit card
  NT6D71 — U interface line card
- A0378866 — Terminating resistor
- PRI circuit card — one of the following:

  NTRB21— 1.5 Mb TMDI circuit card, which has a built-in downloadable D-channel
  NTAK09 — 1.5 Mb DTI/PRI circuit card
  NTAK79 — 2.0 Mb PRI circuit card
  NTBK50 — 2.0 Mb PRI circuit card, used in conjuction with the Downloadable D-channel application

  Note: A PRI card is required for packet data implementation only.

- DPN-100 External Packet Handler

  Note: A DPN-100 is required for packet data implementation only.

- ISDN BRI terminals

  — M5317TDX
  Meridian 1 set equipped with voice and data transmission options and a hands-free feature; supports B-channel and D-channel packet data.

  — M5000TD-1
  ISDN Terminal Adapter provides a connection to an analog telephone and supports circuit-switched or packet data; supports B-channel and D-channel packet data.

  — Any other terminal deemed compatible by Nortel Networks.

  Note: ISDN BRI terminals are required for line applications only.

- Terminal adapters
  Required if connecting non-BRI terminals to the ISDN BRI line interface.
- Network Termination 1 (NT1)
  Needed when conversion from a U to an S/T interface is required.
  - NT1 unit
  - NT1 standard power supply
  - two cables are provided with the NT1 power supply unit:
    - a 178 mm (7 in.) cable (A0346581) for connecting between the power supply and the NT1 unit.
    - a captive power cord for connection the an ac power outlet.

Hardware required for ISDN BRI trunking

The following hardware is required to configure ISDN BRI trunk applications on Option 11C:

Note: ISDN BRI trunking is not supported in North America.

- MISP circuit card — NTBK22
- SILC circuit card
  NT6D70AA — -48V North American S/T interface line card
  NT6D70BA — -40V International S/T interface line card
- UILC circuit card
  NT6D71 — U interface line card
- Clock Controller
  NTAK20AB — Stratum 3 clock controller daughterboard
  NTAK20BB — Stratum 4 clock controller daughterboard

  Note: A clock controller is required in every cabinet equipped with a digital trunk card.
- Network Termination 1 (NT1)
  Needed when conversion from a U to an S/T interface is required (needed for ISDN BRI TIE trunk connectivity UILC to SILC).
  - NT1 unit

— NT1 standard power supply

— two cables are provided with the NT1 power supply unit:

– a 178 mm (7 in.) cable (A0346581) for connecting between the power supply and the NT1 unit.

– a captive power cord for connection to an AC power outlet.

Configure ISDN BRI trunking with IP expansion cabinets

When configuring the MISP card slot number for ISDN BRI trunking in LD 27, the response to the LOOP prompt is slots 1-9 for the main cabinet, and slots 11-19, 21-29 , 31-39, 41-49 for the first, second, third and fourth IP expansion cabinets, respectively.

When configuring the DSL for ISDN BRI trunking in LD 27, the response to the MISP prompt is slots 1-9 for the main cabinet, and slots 11-19, 21-29 , 31-39, 41-49 for the first, second, third and fourth IP expansion cabinets, respectively.

Install ISDN BRI hardware

The following procedures should be followed in the order shown. These procedures apply for line, packet data, and trunking applications. Please note, however, that certain procedures may *only* apply for line, packet data, or trunking.

The Option 11C system should already be installed and operational before performing these procedures.

1 Select the card slots.

2 Install the MISPs.

3 Install the clock controller on the MISP, if required.

Note 1: A clock controller is required for ISDN BRI trunk applications only. The Option 11C system supports a single active clock controller (CC). This clock controller can support both a primary and a secondary reference clock. These reference clock sources may be derived from either BRI spans or DSLs (DSL 0 and/or DSL 1).

Note 2: A clock controller is required in every cabinet that contains a digital trunk.

4 Install the SILCs and/or UILCs.

5 Install the PRI hardware.

Note: This step is required for packet data implementation only.

6 Connect the ISDN BRI terminals (for line applications).

- Connect the Option 11C cables to the cross-connect terminal. Why does this not work
- Cross-connect the wiring.
- Connect the terminating resistor to the end of the SILC DSL.
- Connect the ISDN BRI terminals to the DSL.
- Initialize the terminals.

- or -

7 Connect the ISDN BRI trunks (for trunking applications).

- Connect the Option 11C cables to the cross-connect terminal
- Cross-connect the DSLs.

Select the card slots

Refer to Table 1 for ISDN BRI circuit card assignments in the main cabinets.

Identify the card slots in the Option 11C cabinets that will house the ISDN BRI cards.

The following rules apply when selecting the card slots:

- MISPs are inserted in the main cabinet in any available slots 1-9 of the Main cabinet, or in slots 11-19, 21-29, 31-39, 41-49 of the first, second, third, and fourth IP Expansion cabinets, respectively
- One MISP supports a set of four SILCs or UILCs, or a combination of both SILCs and UILCs.
- SILCs and UILCs can be installed in slots 1-9 of the Main cabinet, or in slots 11-19, 21-29, 31-39, 41-49 of the first, second, third, and fourth IP Expansion cabinets, respectively.

Table 1
ISDN BRI card location

ISDN BRI Circuit Card	Main Cabinet	Expansion Cabinet
MISP	Slots 1 through 9	Slots 11-19, 21-29, 31-39, 41-49 of the first, second, third, and fourth IP Expansion cabinets, respectively
SILC not used as a clock reference	Slots 1 through 9	Slots 11-19, 21-29, 31-39, 41-49 of the first, second, third, and fourth IP Expansion cabinets, respectively
SILC used as a clock reference	Slots 1 through 9	Slots 11-19, 21-29, 31-39, 41-49 of the first, second, third, and fourth IP Expansion cabinets, respectively
UILC	Slots 1 through 9	Slots 11-19, 21-29, 31-39, 41-49 of the first, second, third, and fourth IP Expansion cabinets, respectively

Install the MISP

1 Remove the cover from the main cabinet.

CAUTION
The static discharge bracelet located inside the cabinet must be worn before handling circuit cards. Failure to wear the bracelet can result in damage to the circuit cards.

2 Remove the MISP from its shipping package and hold it by its card locking devices.

Note: While performing the next step observe the LED on the faceplate of the MISP.

3 Insert the MISP into the selected card slot and lock it in place.

4 The LED should light, flash three times then remain lit to indicate that the MISP is operating correctly but is not configured and enabled.

– or –

5 The LED should light, flash three times then extinguish to indicate that the MISP is operating correctly and is configured and enabled.

Any other LED indication suggests a defective MISP circuit card.

Note: The Flash ROM can become corrupted if loss of power occurs during programming of the Flash ROM. If this occurs, the Flash ROM will automatically be re-initialized when the MISP is installed (powered up). This operation will delay the completion of the self-test, and it will take five minutes for the LED to flash three times.

6 Repeat the steps in this procedure for each MISP being installed.

Remove the MISP

1 Hold the MISP by its card-locking devices. Squeeze the tabs to unlatch the card-locking devices and lift the tabs out and away from the card.

2 Carefully remove the MISP from its' card slot, and slowly slide out the card from the cabinet.

Install the clock controller on the MISP (for trunking applications)

A clock controller is required for ISDN BRI trunk applications only. The Option 11C system supports a single active clock controller. This clock controller can support both a primary and a secondary reference clock. These reference clock sources may be derived from either BRI spans or DSLs (DSL 0 and/or DSL 1).

A clock controller is required in every cabinet that contains a digital trunk.

The line cards associated with BRI DSLs used as clock references must be installed in the Main Cabinet.

Clock controller installation guidelines

- If the primary reference clock source is to come from a PRI or DTI, then the clock controller must reside as a daughterboard on the DTI/PRI card.
- If the primary reference clock is to be derived from a BRI DSL, then the CC daughterboard must reside on the MISP associated with that line card, and **DSL0** of that line card is used to generate the reference clock.
- If a DTI/PRI is to be used as a secondary clock source reference, the clock controller daughterboard can reside on either a DTI, PRI or MISP. The clock is extracted from the target DTI/PRI span and routed to the clock controller over the back plane.
- If a BRI DSL is to be used as a secondary clock source reference, the clock controller daughterboard can reside on either a DTI/PRI or MISP. The clock is extracted from **DSL1** of the source line card and routed over the backplane to the CC.

Install the SILC and UILC

1 Remove the cover from the assigned cabinet.

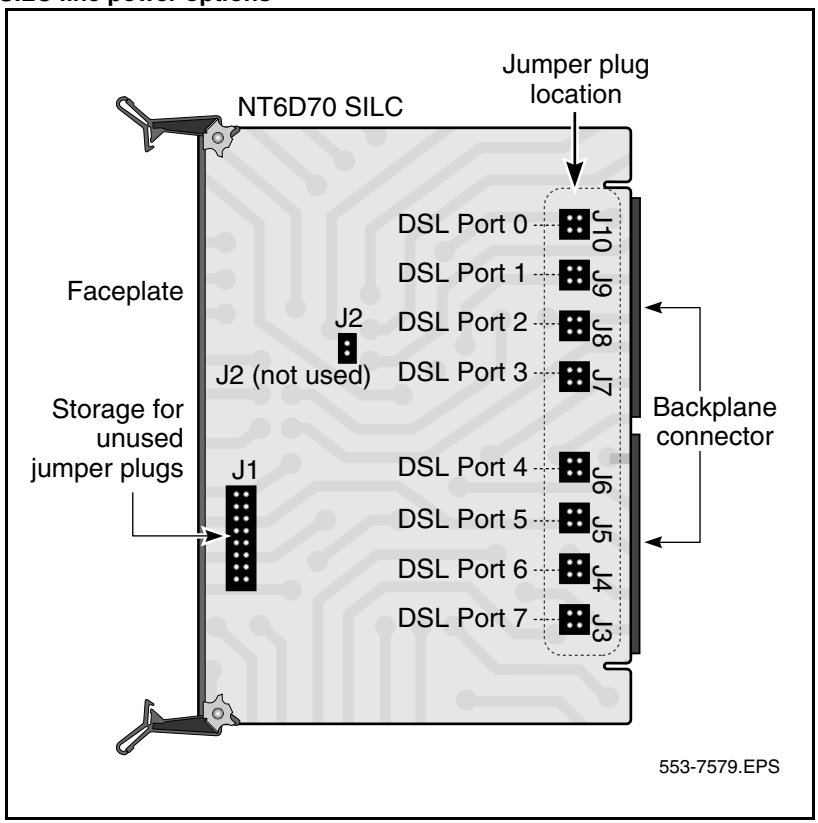
> **CAUTION**
> The static discharge bracelet located inside the cabinet must be worn before handling circuit cards. Failure to wear the bracelet can result in damage to the circuit cards.

2 Remove the SILC or UILC from its shipping package and hold it by its card locking devices.

3 Configure the line powering options for the SILC using the jumper plugs. Each port is equipped with its own set of option jumper plugs to allow individual configurations for each DSL.

The SILC has three line powering options. These options are configured using the jumpers located near the backplane connector as shown in Figure 1.

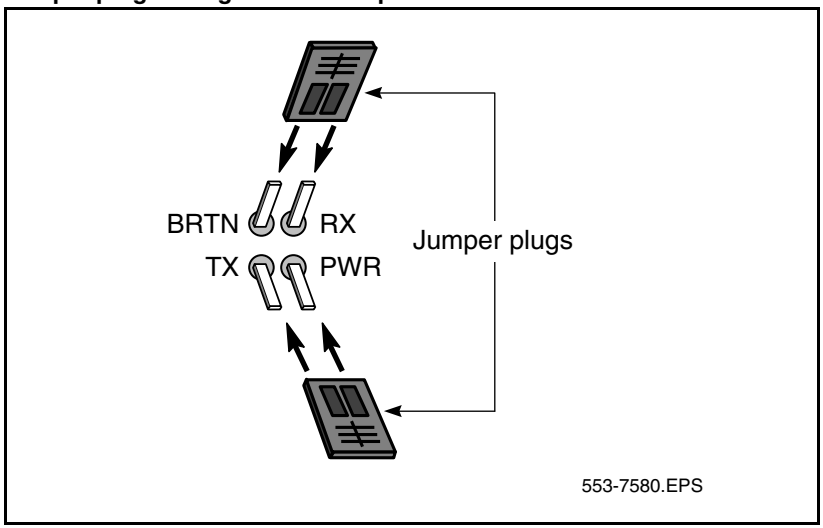
Figure 1
SILC line power options



Unused jumper plugs should be stored on position J1 of the SILC for future use. The following describes the three options and their jumper settings.

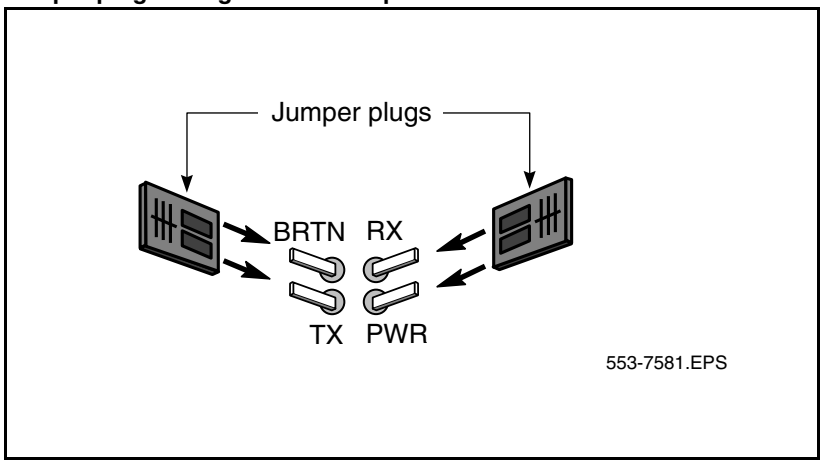
a. Normal power on the Tx and Rx leads. This option is set at the factory and provides normal power (-48 or -40 V) on the Tx lead and battery return (BRTN) on the Rx lead to power the terminal. It is implemented by installing one jumper plug across the Rx and BRTN pins, and one across the PWR and Tx pins, as shown in Figure 2.

Figure 2
Jumper plug settings for normal power on the Tx and Rx leads



b. Reverse power on the Tx and Rx leads. This option is used only in Japan and provides power (-48 or -40 V) on the Rx lead and battery return (BRTN) on the Tx lead to power the terminal. It is implemented by installing one jumper plug across the Rx and PWR pins, and one across the BRTN and Tx pins as shown in the Figure 3.

Figure 3
Jumper plug settings for reverse power on the Tx and Rx leads



c. No power on the Tx and Rx leads. This option is used when the terminal is powered locally with an adapter provided with the terminal. It is also used when a SILC DSL is used for trunking. Remove the jumper plugs and store them on J1 to implement this option.

Note: Observe the LED on the faceplate of the SILC or UILC while performing the next step.

4 Insert the SILC or UILC into the selected card slot and lock it in place.

The LED should light, flash three times, then remain lit to indicate that the card is operating correctly but is not configured.

—or—

The LED should light, flash three times, then extinguish to indicate that the card is operating correctly and is configured.

Any other LED indication suggests a defective circuit card.

5 Repeat the steps in this procedure for each SILC or UILC being installed.

Remove the SILC and UILC

1 Hold the card by its card-locking devices. Squeeze the tabs to unlatch the card-locking devices and lift them away from the card.

2 Carefully disengage the SILC or UILC from the backplane connector, and slowly slide out the card from the cabinet.

Install the PRI hardware (for packet data implementation)

To install the 1.5 Mb NTRB21 TMDI card, or the NTAK09 1.5 Mb PRI circuit card, refer to *Option 11C 1.5Mb DTI/PRI* (553-3011-310).

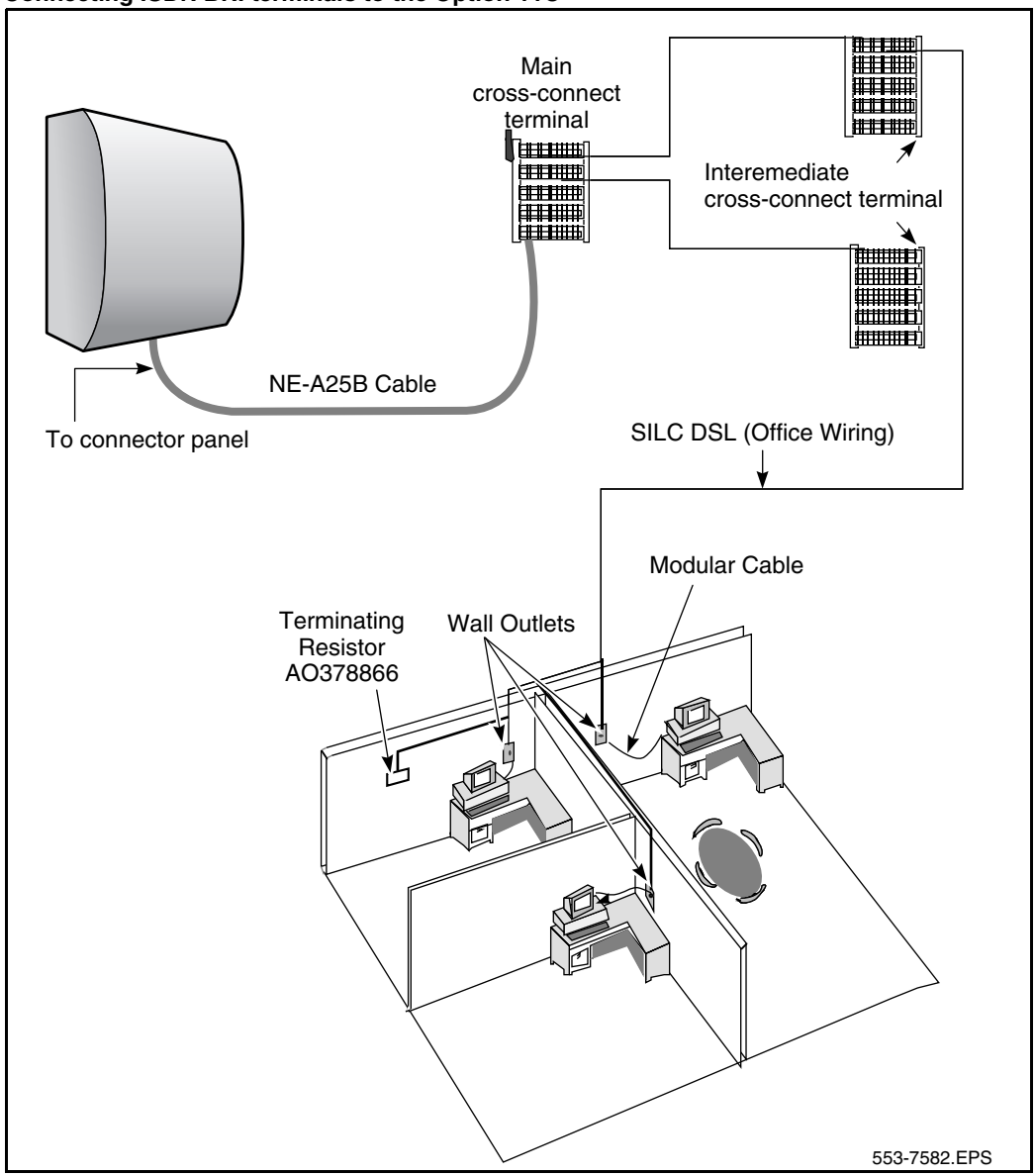
To install the NTAK79 2.0 Mb PRI circuit card, or the NTBK50 2.0 Mb PRI circuit card, refer to *Option 11C 2.0Mb DTI/PRI* (553-3011-315).

Connect the ISDN BRI terminals (for line applications)

- Connect the Option 11C to the cross-connect terminal
- Cross-connect the wiring
- Connect the terminating resistor to the SILC DSL
- Connect ISDN BRI terminals to the DSL (a modular cord is used to connect a terminal to a DSL. The maximum length of this connection is 10 m (3.5 ft) from the terminal to the RJ-45 jack.)
- Initialize the terminals

Figure 4 shows a typical DSL and ISDN BRI terminals connected to the Option 11C.

Figure 4
Connecting ISDN BRI terminals to the Option 11C



Connect Option 11C cables to the cross-connect terminal

Each card slot equipped with a SILC or UILC requires one NE-A25B 25-pair connector cable. The cables are connected to connectors located at the bottom of the cabinet and are routed through the openings in the lower part of the cabinet. Each connector is assigned to its corresponding card slot (example: connector J8 is assigned to card slot 8).

1 Remove the connector retaining bar from the connector panel in the lower part of each cabinet. See Figures 5, 6, and Figure 7.

2 Connect an NE-A25B cable to each of the connectors associated with a card slot containing a SILC or UILC circuit card. See Figures 5, 6, and Figure 7.

Make sure to tag both ends of each cable with the cabinet and connector numbers.

3 Route the cables down through the opening at the bottom of the cabinet.

4 Replace the retaining bar when you have connected all the cables to the cabinet.

5 Terminate the 25-pair cables installed at the cross-connect terminal.

6 Label the cross-connect terminal for each connector (UILC or SILC).

Figures 8 on page 24 and 9 on page 24 show the label used with the BIX cross connecting system.

Note: Use of the BIX cross-connect system is not mandatory. The Option 11C is designed to be used with other types of cross-connect equipment. Refer to the documentation provided with your cross-connect system for connection information.

Figure 5
Cable connectors in the main cabinet

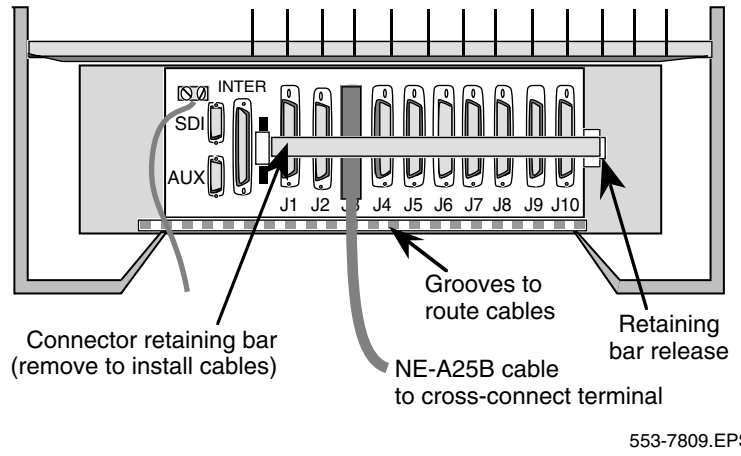


Figure 6
Cable connectors in the first expansion cabinet

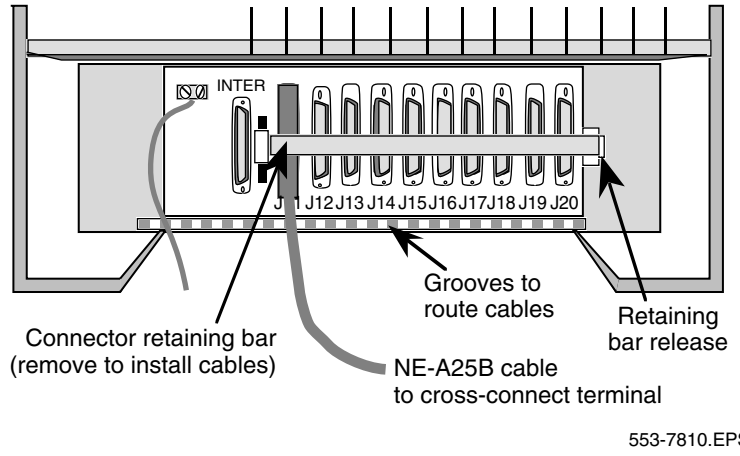

INTER
J12 J13 J14 J15 J16 J17 J18 J19 J20
Grooves to route cables
Retaining bar release
Connector retaining bar (remove to install cables)
NE-A25B cable to cross-connect terminal
553-7810.EPS

Figure 7
Cable connectors in the second expansion cabinet

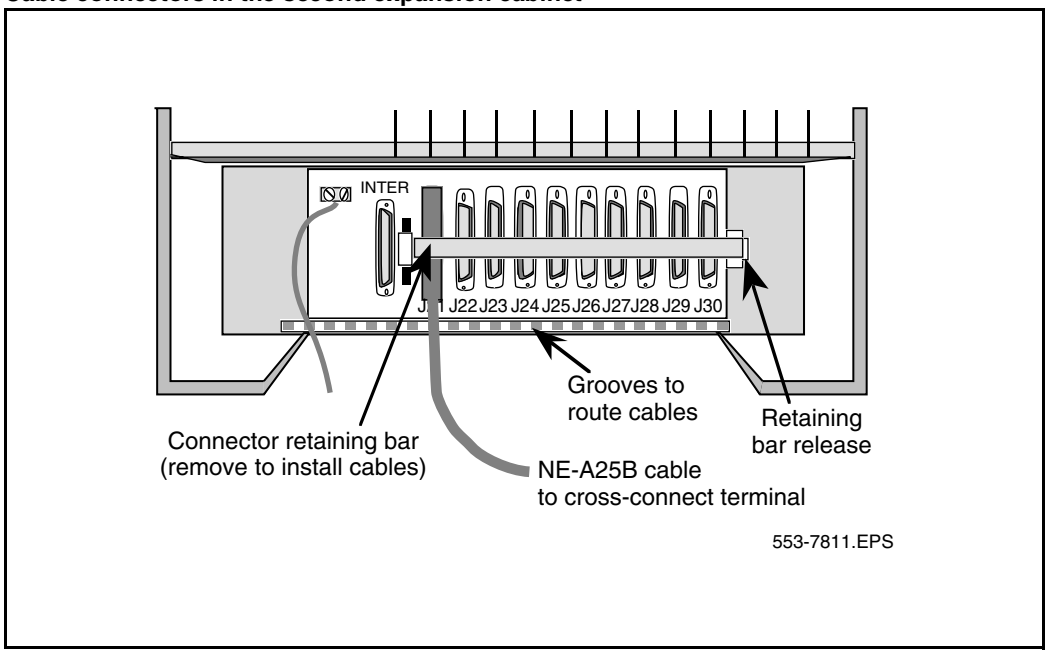

INTER
J21 J22 J23 J24 J25 J26 J27 J28 J29 J30
Grooves to route cables
Retaining bar release
Connector retaining bar (remove to install cables)
NE-A25B cable to cross-connect terminal
553-7811.EPS

Figure 8
SILC port designation label at the cross-connect terminal

Tx-Tx+Rx+ Rx-0	Tx-Tx+Rx+ Rx-1	Tx-Tx+Rx+ Rx-2	Tx-Tx+Rx+ Rx-3	Tx-Tx+Rx+ Rx-4	Tx-Tx+Rx+ Rx-5	Tx-Tx+Rx+ Rx-6	0 7	

Note: The pair designated Tx- Tx+ is the transmit pair. The pair designated Rx- Rx+ is the receive pair. a SILC port supplies 2 W of power at -48 V (-40 V for Europe), simplexed over the transmit and receive pairs. The transmit pair is negative with respect to the receive pair.

Figure 9
UILC port designation label at the cross-connect terminal

T R 0		T R 1		T R 2		T R 3		T R 4		T R 5		T R 6		T R 7	0	

Note: The cable pair designated T R is a 2B1Q full duplex U interface.

Cross-connect the DSLs at the cross-connect terminal

Each SILC provides eight four-wire full duplex ports. These ports are connected to building wiring facilities, to form DSLs. The DSLs are polarity sensitive and signal polarity must be maintained along each loop as shown in Figure 10 on page 27.

Each UILC provides eight two-wire full duplex ports. These ports are connected to twisted pair building wiring facilities, to form DSLs as shown in Figure 11 on page 28. The DSLs are not polarity sensitive, and it is not necessary to maintain signal polarity along each loop.

To cross-connect SILC and/or UILC ports to the building wiring:

1 Identify the card type (SILC or UILC) at the cross-connect terminal.

2 Identify the transmit and receive connections for the SILC and the TIP and RING connections for the UILC from the label of the distribution strip.

Refer to Table 5 to identify ports and their connections for a SILC or UILC.

3 Identify building wires connected at the cross-connect terminal.

4 Cross-connect the pins from the SILC or UILC to the building wiring.

5 Repeat this procedure for each DSL.

Table 2
SILC and UILC Port assignments connectors at cross-connect terminal (Part 1 of 2)

SILC Port Signals	UILC Port Signals	Connector Pin Number and Wire Color Code		Card Ports
0 Tx- 0 Tx+ 0 Rx- 0 Rx+	0 T 0 R	26 1 27 2	W-BL BL-W W-O O-W	Port 0
1 Tx- 1 Tx+ 1 Rx- 1 Rx+	1 T 1 R	28 3 29 4	W-G G-W W-BR BR-W	Port 1

Table 2
SILC and UILC Port assignments connectors at cross-connect terminal (Part 2 of 2)

2 Tx- 2 Tx+ 2 Rx- 2 Rx+	2 T 2 R	30 5 31 6	W-S S-W R-BL BL-R	Port 2
3 Tx- 3 Tx+ 3 Rx- 3 Rx+	3 T 3 R	32 7 33 8	R-O O-R R-G G-R	Port 3
4 Tx- 4 Tx+ 4 Rx- 4 Rx+	4 T 4 R	34 9 35 10	R-BR BR-R R-S S-R	Port 4
5 Tx- 5 Tx+ 5 Rx- 5 Rx+	5 T 5 R	36 11 37 12	BK-BL BL-BK BK-O O-BK	Port 5
6 Tx- 6 Tx+ 6 Rx- 6 Rx+	6 T 6 R	38 13 39 14	BK-G G-BK BK-BR BR-BK	Port 6
7 Tx- 7 Tx+ 7 Rx- 7 Rx+	7 T 7 R	40 15 41 16	BK-S S-BK Y-BL BL-Y	Port 7
Note: The cable pair designated Tx- Tx+ is the transmit pair and the pair designated Rx+ Rx- is the receive pair of the S/T interface. The cable pair designated T R is the Tip and Ring of the 2B1Q full duplex U interface.				

Figure 10
Cross-connecting a SILC port to the office wiring

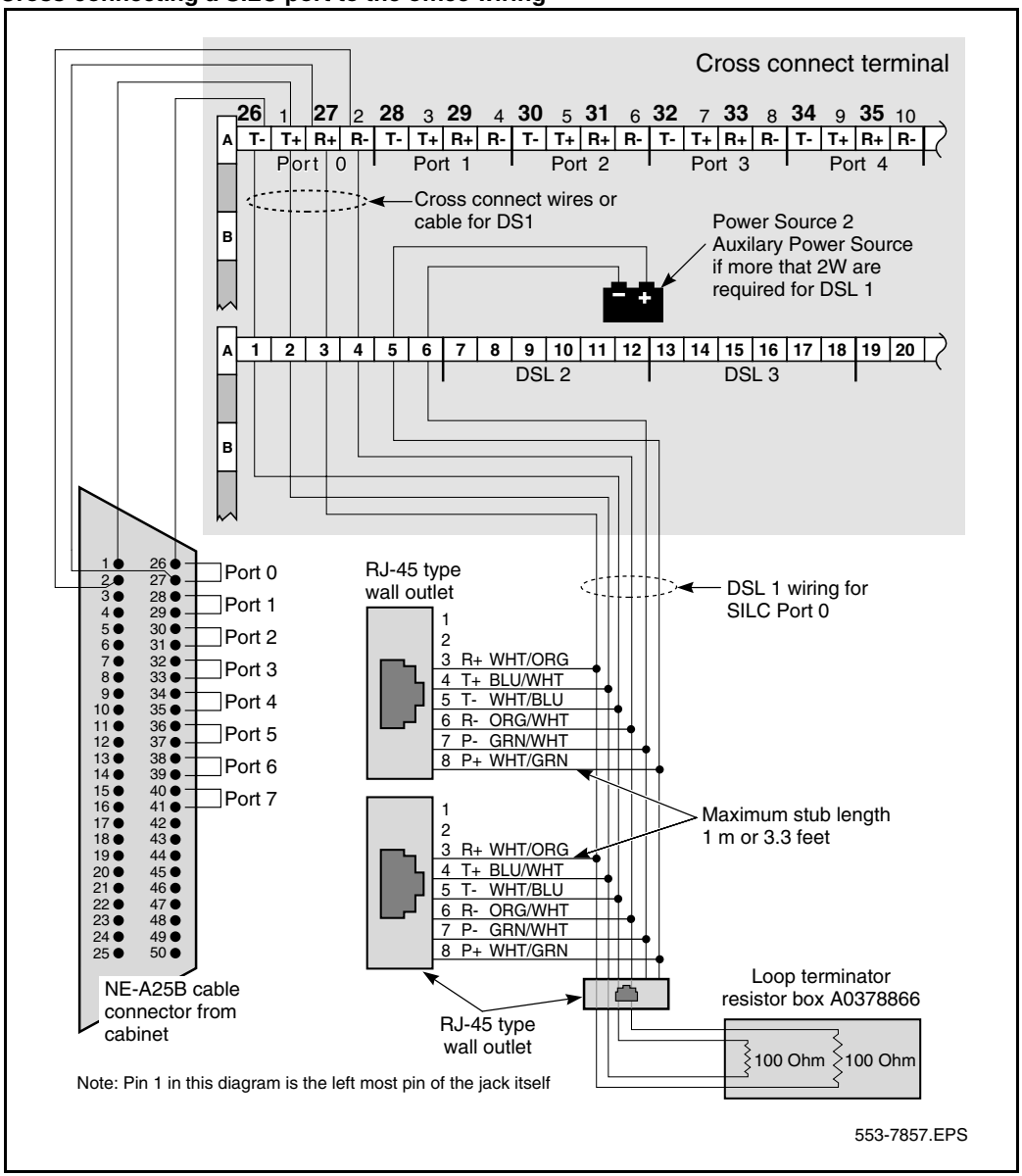
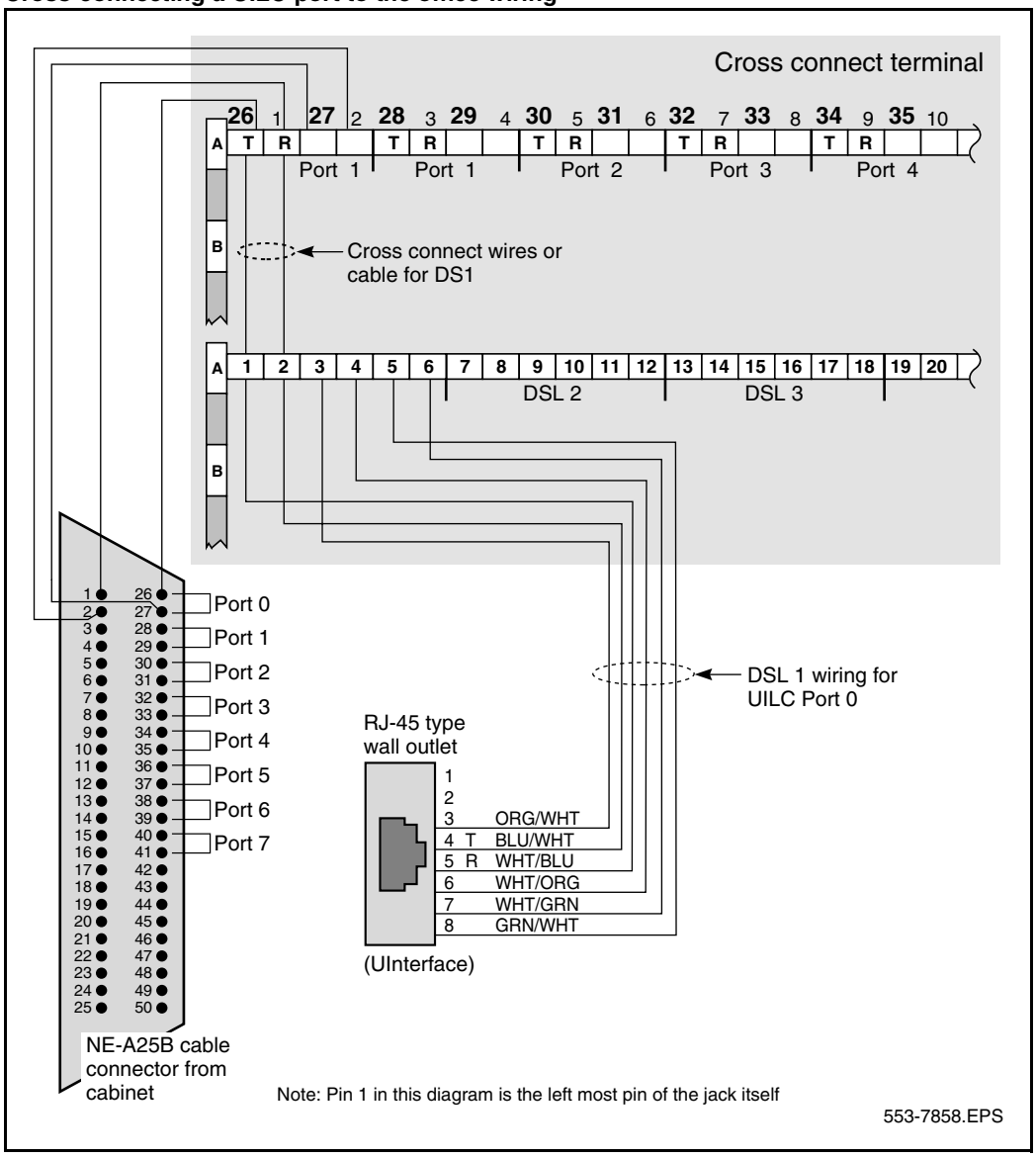

Cross connect terminal
26 1 27 2 28 3 29 4 30 5 31 6 32 7 33 8 34 9 35 10
A
T- T+ R+ R- T- T+ R+ R- T- T+ R+ R- T- T+ R+ R- T- T+ R+ R-
Port 0
Port 1
Port 2
Port 3
Port 4
B
Cross connect wires or cable for DS1
Power Source 2
Auxilary Power Source if more that 2W are required for DSL 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
DSL 2
DSL 3
Port 0
Port 1
Port 2
Port 3
Port 4
Port 5
Port 6
Port 7
NE-A25B cable connector from cabinet
RJ-45 type wall outlet
DSL 1 wiring for SILC Port 0
3 R+ WHT/ORG
4 T+ BLU/WHT
5 T- WHT/BLU
6 R- ORG/WHT
7 P- GRN/WHT
8 P+ WHT/GRN
Maximum stub length 1 m or 3.3 feet
RJ-45 type wall outlet
Loop terminator resistor box A0378866
100 Ohm
100 Ohm
Note: Pin 1 in this diagram is the left most pin of the jack itself
553-7857.EPS

Figure 11
Cross-connecting a UILC port to the office wiring



Connect the terminating resistor

Connect the terminating resistor (A0378866) to the end of the SILC DSL by plugging the DSL to the RJ-45 jack on the resistor.

Connect the ISDN BRI terminals to the DSL

ISDN BRI terminals are connected to DSLs using modular cables not longer than 10 m (33 ft) with RJ-45 type plugs on each end. One end of the cable is plugged into the terminal and the other end is plugged into the telephone outlet.

> ***Note:*** All terminals should comply with one of the following protocols: ETSI NET-3, INS NET-64, NUMERIS or ANSI standards for ISDN BRI terminals and be deemed compatible with Meridian 1. Contact your Nortel Networks representative for the latest list of compatible terminals.

To connect 1TR6 terminals, an ETSI NET-3 to the 1TR6 protocol converter is required. A terminal adapter (the S_O-Adapter) has been specifically designed to interface with the ISDN BRI DSL and the 1TR6 terminals. Its main function is to convert 1TR6 protocol, sent from the 1TR6 terminal into the ETSI NET-3 protocol required for ISDN BRI. See the user guide for configuration details.

S/T interface specification

The S/T interface uses an 8-conductor modular cable terminated with an 8-pin RJ-45 type plug. An 8-pin RJ-45 type jack located on the terminal is used to connect the terminal to the DSL using this modular cable.

Table 3 shows the connector pin assignment for the jack and the plug. It also shows the signal names for each interface pin at the SILC and at the terminal.

Table 3
S/T interface connector specification

Pin Number	RJ45 Jack Pin Signal Name	SILC Signal Name
1	Power Source 3	No connection
2	Power Source 3	No connection
3	Tx +	Rx +
4	Rx +	Tx +
5	Rx -	Tx -
6	Tx -	Rx -
7	Power Sink 2 (-)	No connection
8	Power Sink 2 (+)	No connection

Note: Power source 1 (PS1): Up to 2 Watts of power is supplied by the SILC to the terminals on the DSL. This power is simplexed over the Tx and Rx pairs provided by -48 V (-40 V for Europe) supply on the SILC. The Rx pair is positive with respect to the Tx pair.

Power Sink 2 (PS2) provides an optional means of powering the terminal from a common supply in the wiring closet.

Power Source 3 (PS3) provides the power from the terminal to the NT1 if the NT1 does not have a local power source.

U interface specification

The U interface uses a 2-conductor twisted pair cable terminated with a RJ-45 type jack. An RJ-45 type jack located on the NT1 device is used to connect the terminal to the DSL using this twisted pair cable.

The connector pin assignments for the jack and the plug are shown in the Table . The table also shows the signal names for each interface pin at the UILC and at the terminal.

Table 4
U interface connector specification

Pin Number	RJ45 Jack Pin Signal Name	UILC Signal Name
1	Not used	No connection
2	Not used	No connection
3	Not used	No connection
4	Tip or Ring	Tip or Ring
5	Tip or Ring	Tip or Ring
6	Not used	No connection
7	Not used	No connection
8	Not used	No connection

To connect ISDN BRI terminals to DSLs:

1 Plug one end of the modular cable into the ISDN BRI interface connector on the terminal and the other end of the modular cable into the telephone outlet.

2 For a SILC S/T interface with an optional auxiliary power source, plug the power source into the wall outlet and then the 10-m (33-ft) modular cable into the power source's RJ-45 type jack.

The power source must not feed the power back into the DSL through the RJ-45 wall outlet, only to the local ISDN BRI terminal. The power adapter is normally supplied with the terminal.

Figure 12 illustrates an ISDN BRI terminal connection to an S/T interface. Figure 13 illustrates an ISDN BRI terminal connection to a U interface.

3 Enter the Static TEI at the terminal.

Note: Do not perform this step to assign Dynamic TEIs since they are automatically assigned.

4 Enter the Service Profile ID number at the terminal.

For detailed information about this procedure, refer to the terminal user guide.

5 Repeat steps 1 to 3 for each ISDN BRI terminal to be connected.

Figure 12
Connecting the ISDN BRI terminal to the S/T interface

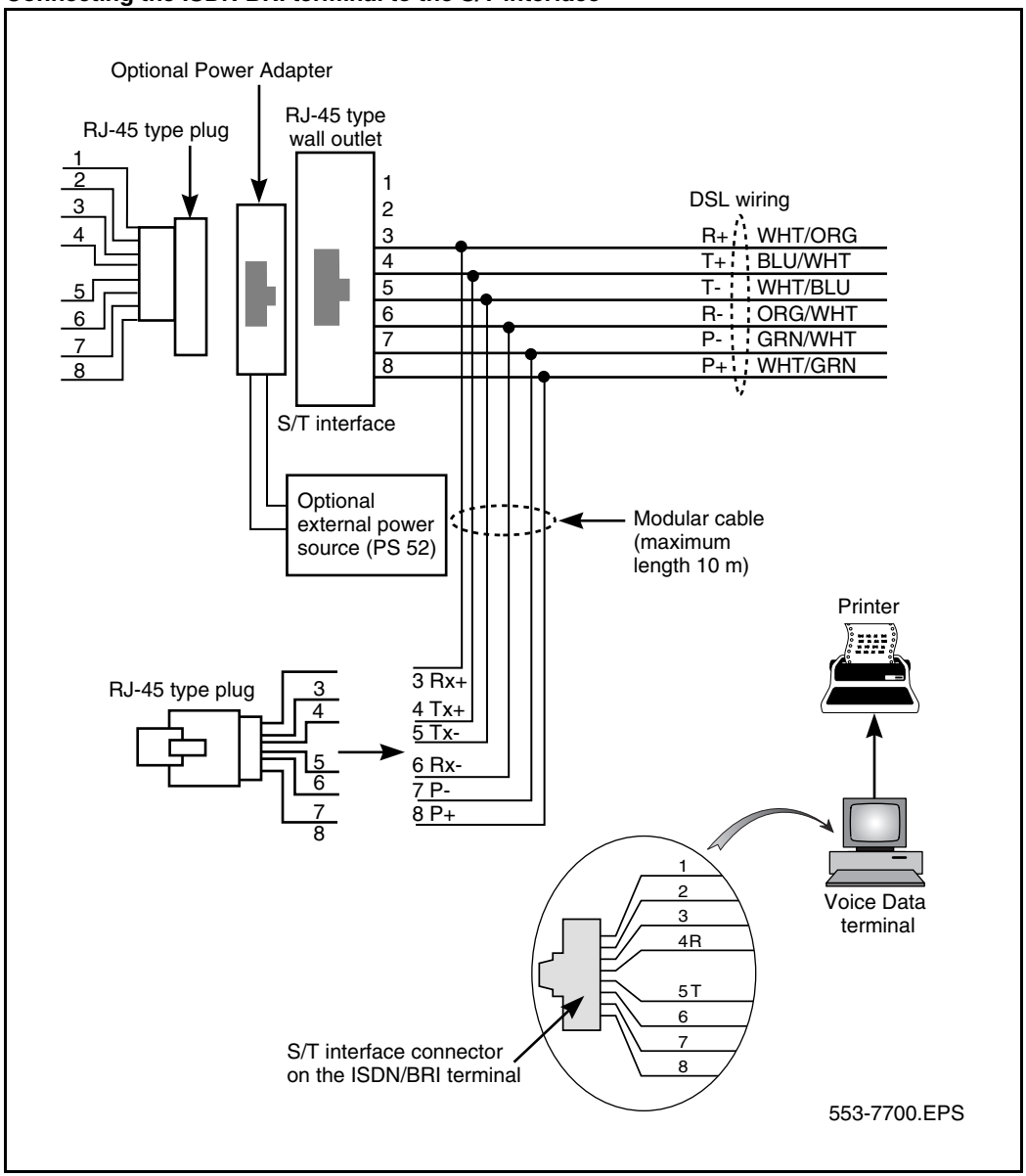
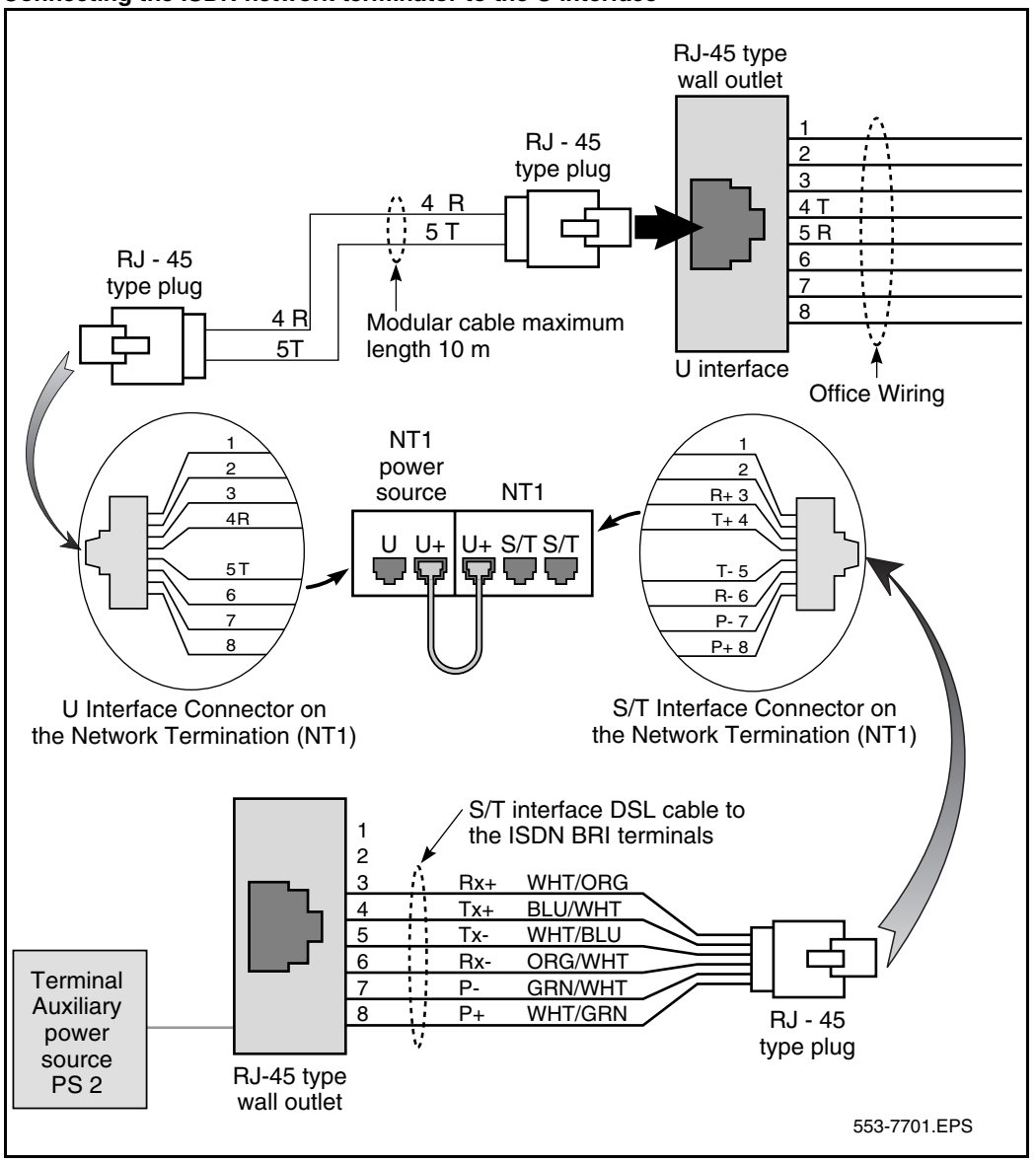


Figure 13
Connecting the ISDN network terminator to the U interface



Initialize a Nortel Networks M5317TDX terminal

The following is an example of the steps to follow to initialize an M5317TDX terminal. Table 5 on page 37 is a list of error codes that may appear during terminal initialization and their meaning. Additional information is contained in the M5317TDX user guide.

1 Set the switch on the bottom of the terminal for either line power or local power.

2 Plug in the M5317TDX terminal while holding down the RLS and HOLD keys as it powers up.

3 Press MAINROM.

4 Press INSTALL.

5 Press ENGLISH or FRANCAIS for your choice of language.

6 Press the soft key of the TEI you want to set PHONE, DATA or X25.

Note: With minimum firmware version 2.0 only dynamic TEI is supported.

7 Enter * for dynamic TEI.

8 Enter the TEI on the terminal keypad for static TEI.

9 Press OK when you have finished setting the TEIs.

10 Enter the phone (voice) SPID. Press OK when finished.

11 Enter the data SPID. Press OK when finished.

12 Enter the data DN. Press OK when finished.

13 Press HEADSET until REAR is displayed.

14 Press SIGTYPE until MER1 is displayed.

15 Press A/MU until MU-LAW is displayed.

16 Press MORE.

17 Press DIALPLN until NATIONAL is displayed.

18 Press EXIT.

19 Press NO for execute SPM.

20 Press YES for Enter datafill.

21 Press YES to delete existing datafill.

22 Press KEY# then enter on the keypad the key number you would like to program.

23 Press EDIT DN then enter on the keypad the DN's digits.

24 Press OK then SAVE after each DN.

25 Repeat steps 17-22 for each voice DN keypad you want. Press EXIT after all DN keys have been entered.

26 If you made a mistake, press INSTALL and begin at step 3. If the entries were correct, press EXIT.

27 Make a voice call to make sure the telephone is operational.

Table 5
M5317TDX terminal error codes

Error Code Number	Description
>>10<<	S/T-loop sync loss and/or Frame sync loss
>>11<<	L1 transmit timer expired
>>21<<	Voice TEI removed by network
>>22<<	Circuit data TEI removed by network
>>23<<	Voice and circuit data TEI removed
>>24<<	X25 TEI removed
>>25<<	Voice and X25 TEI removed
>>26<<	Circuit data and X25 TEI removed
>>27<<	All TEI removed
>>28<<	Voice link not established
>>29<<	Circuit data link not established
>>2A<<	X25 link not established
>>2B<<	No Layer 2 link established
>>30<<	No Layer 3 link established
>>31<<	No valid voice SPID
>>32<<	No valid data SPID
>>90<<	Restricted power mode in use. Lower ringer and speaker phone volumes apply.

Initialize a Nortel Networks M5000 terminal adapter

The M5000 is Nortel Networks's Universal Terminal Adapter (UTA). It adapts a non-BRI data terminal or a 500/2500-type telephone to the ISDN BRI protocol. A terminal must be attached to the M5000 terminal adapter to initialize it. Refer to the M5000 terminal adapter user guide for detailed configuration procedures.

Connect the ISDN BRI trunks (for trunking applications

- Connect the Option 11C cables to the cross-connect terminal
- Cross-connect the DSLs.

Connect the Option 11C cables to the cross-connect terminal

Each card slot equipped with an SILC or UILC requires one NE-A25B 25-pair connector cable. The cables are connected to connectors located at the bottom of the cabinet and are routed through the openings in the lower part of the cabinet. Each connector is assigned to its corresponding card slot (example: connector J8 is assigned to card slot 8).

1 Remove the connector retaining bar from the connector panel in the lower part of each cabinet. See Figures 5 an 6 on page 23, and Figure 7 on page 24.

1 Connect an NE-A25B cable to each of the connectors associated with a card slot containing an SILC or UILC circuit card. See Figures 5 and 6 on page 23, and Figure 7 on page 24.

2 Make sure to tag both ends of each cable with the cabinet and connector numbers.

3 Route the cables down through the opening at the bottom of the cabinet.

4 Replace the retaining bar when you have connected all the cables to the cabinet.

5 Terminate the 25-pair cables installed at the cross-connect terminal.

6 Label the cross-connect terminal for each connector.

Figures 8 and 9 on page 24 show the label used with the BIX cross connecting system.

Cross-connect DSLs at the cross-connect terminal

Each SILC provides eight four-wire full duplex ports. These ports are connected to the trunk wiring facilities (typically cabling or wiring from outside the building) to form DSLs. The DSLs are polarity sensitive and signal polarity must be maintained along each loop as shown in Figure 14 on page 40.

Each UILC provides eight two-wire full duplex ports. These ports are connected to twisted pair trunk wiring facilities to form DSLs as shown in Figure 15. The DSLs are not polarity sensitive and it is not necessary to maintain signal polarity along each loop.

To cross-connect SILC and/or UILC ports to the trunk wiring facilities:

1 Identify the card type (SILC or UILC) at the cross-connect terminal.

2 Identify transmit and receive pins on the top of the labeled distribution strip for the card type you are connecting.

Refer to Table 5 on page 25 to identify ports and their pin numbers for a SILC or UILC.

3 Identify the trunk wiring facilities connected at the cross-connect terminal.

4 Cross-connect the pins from the SILC or UILC to the trunk wiring facilities.

5 Repeat this procedure for each DSL.

Note: For the Option 11C DSL in TE mode, the Tx and Rx pairs must be reversed as shown in Figure 16. Maintain the same polarity on the Tip and Ring pins as for line application. Rewire the selected Tx and Rx pairs to exchange their Tx pairs with Rx pair position. This procedure is required since SILC cards are designed for applications in the NT mode.

Figure 14
Cross-connecting an SILC port

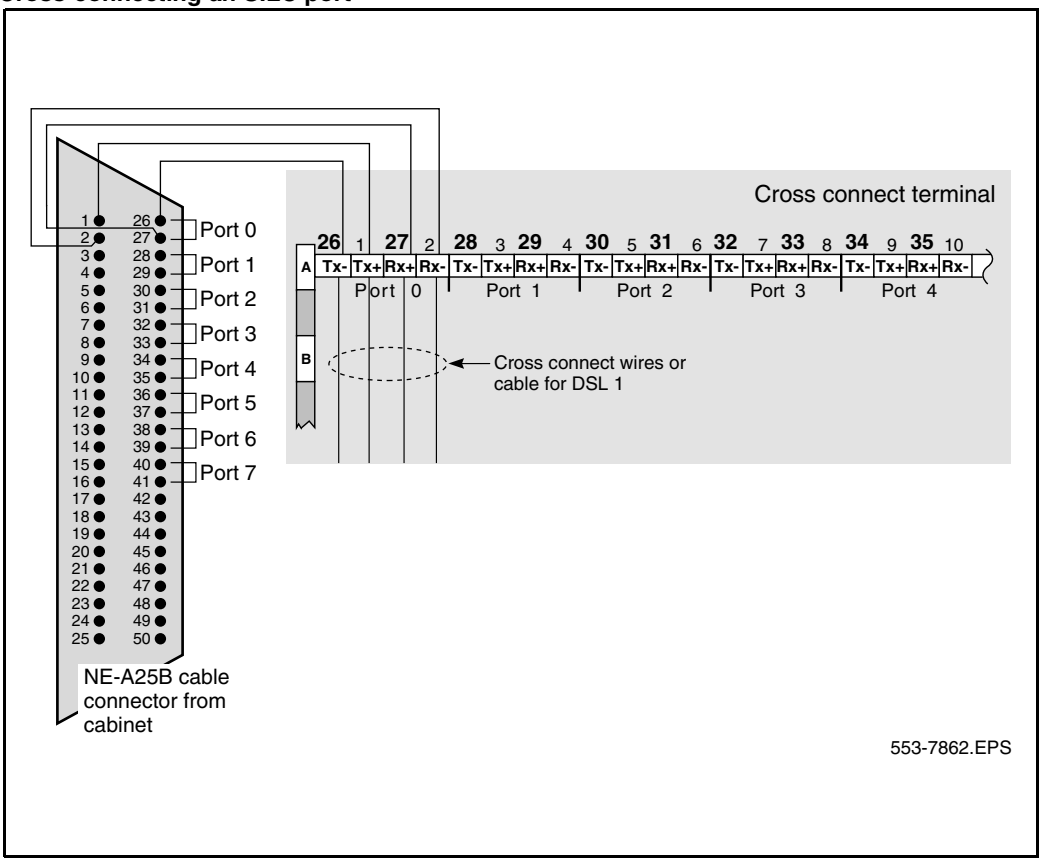


Figure 15
Cross-connecting a UILC port

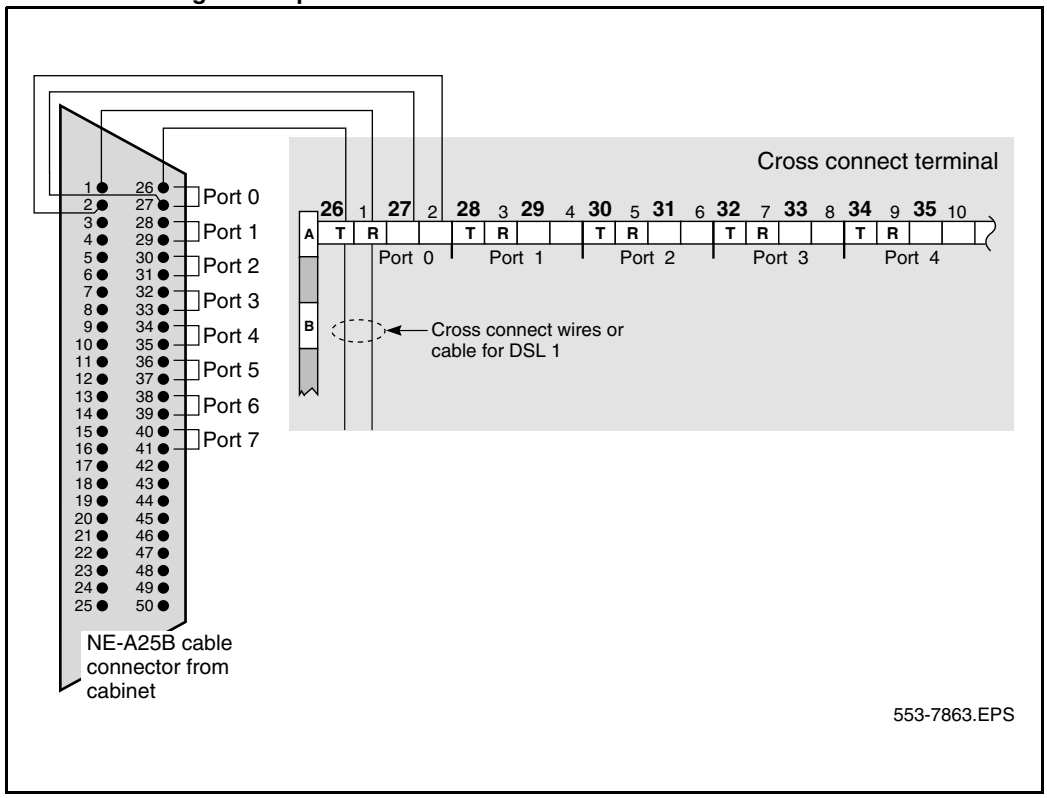
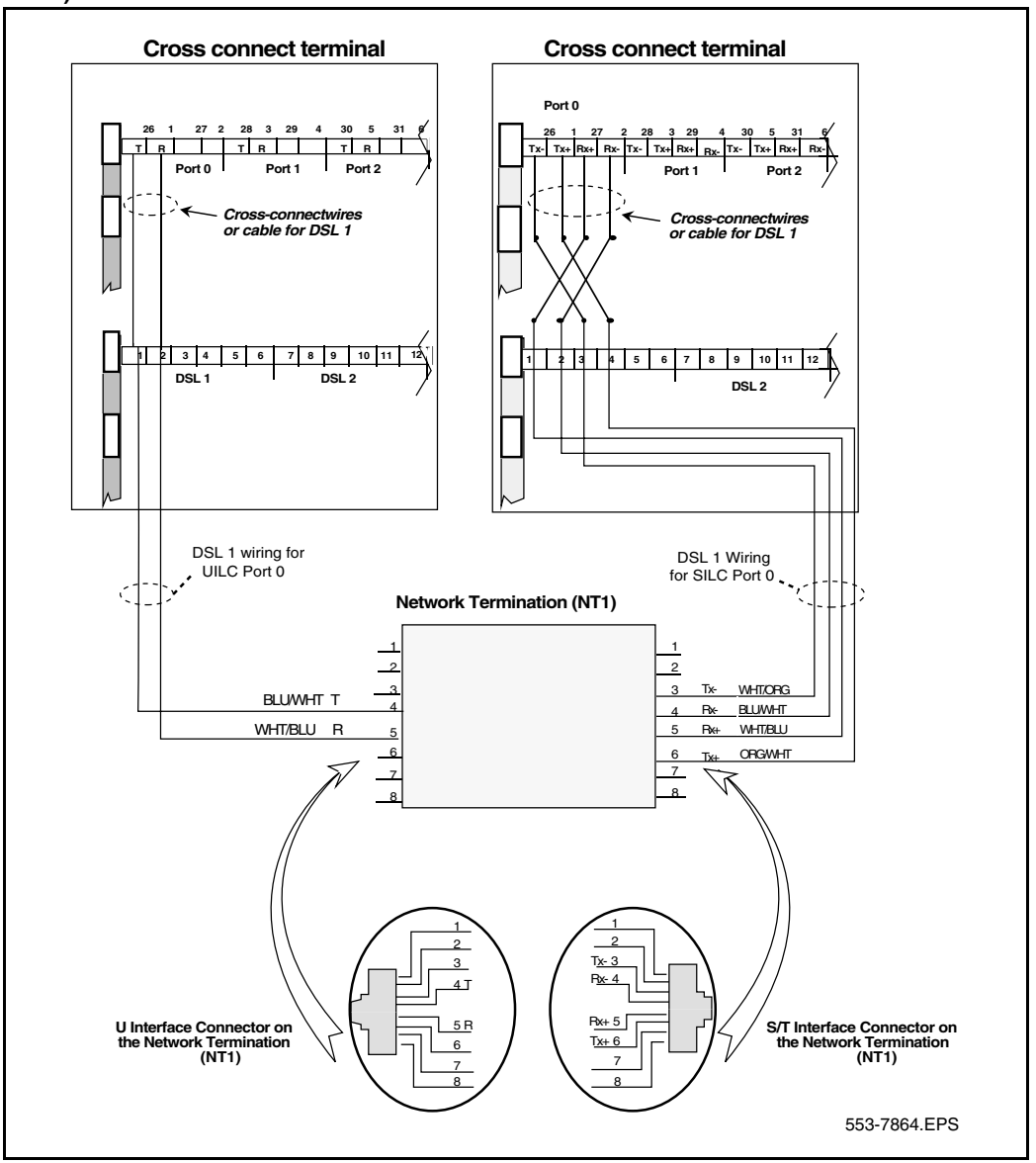


Figure 16
Connecting the ISDN network terminator to the U interface and to the S/T interface (in TE mode)



Meridian 1

Option 11C

ISDN BRI Hardware Installation and Maintenance

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